

DIVISION OF RECLAMATION

OPERATION EXCELLENCE ANNUAL REPORT

AWARD WINNING RECLAMATION



2002 U.S. Department of Interior 25th Anniversary Gold Award Solar Sources, Inc. Sky Point Mine, Lynnville, IN

During 2002, OSM presented awards to the most outstanding examples of coalmine reclamation that have been accomplished since the Surface Mining Control and Reclamation Act (SMCRA) was enacted in 1977. The Solar Sources, Inc. Sky Point Mine was recognized as the very best example of coalmine reclamation in the United States during the past 25 years. It was recognized for its exemplary soil replacement and for restoring the site to productive farmland. Sky Point is the finest example to be found of restoration to original contour and uniform soil replacement under a variety of mining conditions. The main effort by Solar Sources at Sky Point was the restoration of topography, soil, water and drainage conditions that are conducive to a primarily agricultural purpose and also capable of supporting multiple land uses. Many new permanent water impoundments were created on the reclaimed areas. These areas provide recreation, livestock watering, and wildlife habitat. Crop production from the farmlands has exceeded the target yields required for the mine. Solar Sources diligence in soil replacement, fertility and revegetation was above and beyond the basic requirements of SMCRA. It has paid off in landowner satisfaction, excellent crop production and the best example of mine reclamation in the nation in the last twenty-five years. *(see page 6)*





MESSAGE from the DIRECTOR

When asked to identify the most satisfying part of their jobs, Reclamation staff typically identify fully completed and successful land restoration. This is possible only when there is, from the beginning, planning and coordination between the coal operator or contractor, engineering staff and construction project manager, and the landowner. A key ingredient is the long range vision of these partners; visualizing the land after construction is complete: newly formed wetlands, thriving forests, prime farmland covered with abundant crops, superb wildlife areas, and much more.



The theme of this Annual Report is about the success of award-winning land restoration. I am proud to report that numerous reclaimed coal mine sites in Indiana have been selected for honors by a wide variety of outside groups from across our Nation. Sites worthy of such consideration do not just happen. It takes considerable engineering, design, and planning – all inspired by a *Vision* of what can be once that work is completed. Bringing dreams to life requires foresight, trust and diligent patience during the several years it can take for the desired results to be fully realized.

The staff of the Division of Reclamation recognize the importance of balancing the need for productive lands with our national reliance on coal as a valuable energy resource. It is understood that mining will occur only once and every effort must be made to ensure that the mining activity is as efficient and productive as possible. After the coal is recovered, the land should retain its great promise for years and decades and centuries. The ability of the land to support multiple uses must be restored or, when possible, even enhanced.

The coal region of Indiana and its citizens have benefited greatly by the work of mine operators and contractors, and the ability of the staff of the Division of Reclamation to focus on overall reclamation success. Reclaimed sites are being utilized to raise crops and livestock; provide a home for some of the best fisheries in the Midwest; offer exceptional waterfowl and wildlife opportunities; be used for industrial and residential development; make available additional public recreation; and even host national sporting events such as the recent NCAA Division I Cross Country Championships.

This document features information on the regulatory and restoration programs of the Division of Reclamation. Special attention is given to our award winning sites and projects. They are recognized as some of the best in the nation. As you review our work, please remember that it is a cooperative effort between many groups including our experienced, talented, and innovative staff who elevate Indiana coal regulatory and restoration programs as leaders in mine land reclamation.

On behalf of the staff of the Indiana Division of Reclamation, I am honored to present this 2003 Annual Report on some of the finest land restoration in the nation.

Sincerely,

A handwritten signature in black ink that reads "Bruce Stevens". The signature is fluid and cursive.

Bruce Stevens
Director
Division of Reclamation



AML PROGRAM AWARDS 1993 - 2002

2002 OSM AML Mid-Continent Regional Award and National Award

Outstanding Performance

in completing exemplary abandoned mine land (AML) Reclamation of the Sunshine Project and being selected the best project in 2002.

The award noted that the on-the-ground achievement at this site is a tribute to those responsible for the reclamation and a model for others to follow.

The Sunshine Mine consisted of a 25-acre mine refuse pile that had a history of mine fires that created air pollution problems for the adjacent town of Bicknell and leaked acid mine drainage into Indian Creek along SR 67. Reclamation involved grading the mine refuse pile, applying lime, covering the pile with four feet of soil, razing the mine buildings, installing erosion control structures and a retention basin/wetland to reduce the acid mine drainage, and revegetation. Reclamation provided a wildlife habitat area and an expansion of the Knox County Fair Grounds. (see Page 13)

2002 Governor's Award for Environmental Excellence

recognized Eli Lilly and Purdue University as partners in this award winning project

In partnership with Eli Lilly and the Division of Reclamation, Purdue University developed a synthetic soil product called "SoilerMaker". This 120-acre slurry site was barren of vegetation and discharged acid mine drainage into Little Birch Creek. SoilerMaker, which consists of a mixture of coal combustion by-products and spent mycelial cake from the Eli Lilly Lafayette Laboratories, was applied to the site and incorporated into the slurry. The site was then vegetated with warm season grasses turning this wasteland into excellent wildlife habitat.



BEFORE RECLAMATION



AFTER RECLAMATION



2000 OSM AML Reclamation Mid-Continent Regional Award
for Exemplary Achievement in the reclamation of the Midwestern Project.

2000 OSM Peoples Choice Award
for the Midwestern Project
voted most outstanding by citizens, coal industry representatives,
and State/Federal Reclamation Professionals.

The Midwestern Project was recognized as an exemplary achievement in reclamation and the most outstanding project by citizens, coal industry, and government officials judging state projects. The 550-acre site included numerous hazardous mine highwalls, barren spoil, exposed mine refuse, acid pits, and acid mine drainage. The main focus of the award was the use of 500,000 cubic yards of coal combustion by-product (CCB) to fill and cover 90 acres of mine refuse and to fill acid pits. Anoxic limestone treatment cells were used to control drainage from the site into the Patoka River. Because of the reclamation of the Midwestern Site, the Division and the consultant, ATC Associates, were presented an award in 1998 by the Consulting Engineers of Indiana. (*see Page 17*)

**Recognizing the Excellence
of the
Division of Reclamation
AML Program**

- ☆ **2000 Innovations Award, Midwestern Council of State Governments** for unit price contracting concept.
- ☆ **2000 State of Indiana Quality Improvement Award** for development of unit price contracting.
- ☆ **1996 Consulting Engineers of Indiana Engineering Excellence Awards in the Water Resource Category. Grand Project Award:** Tecumseh Mine.
- ☆ **1994 OSM National AML Reclamation Certificate of Achievement** for accomplishments in the reclamation of the Friar Tuck Northwest Gob Pile.
- ☆ **1993 OSM AML Reclamation Award Finalist** recognizing special achievement for reclamation of the Friar Tuck Tailings.
- ☆ **1993 OSM AML Reclamation Award** recognizing special achievement for reclamation of the Coe, Indiana Coal Processing Project.



Active Mining Reclamation Awards 1992 - 2002

The Indiana Regulatory Program consistently encourages operators to mine and reclaim responsibly. One result of this positive interaction between regulators and the industry is the number of reclamation awards that have been received.

2002

U.S. Department of Interior Award - 25th Anniversary Gold Award Solar Sources, Inc. Sky Point Mine

Solar Sources, Inc. Sky Point Mine was recognized by the Office of Surface Mining (OSM) as the most outstanding example of coal mine reclamation in the United States since the federal regulatory surface coal mine law was enacted twenty five years ago (1977). Sky Point was considered the finest example for its uniform soil replacement and restoration of the site to farmland beyond the basic requirements. Many new permanent water impoundments were created on the reclaimed areas for recreation, livestock watering, and wildlife habitat. Crop production from the farmlands has exceeded the target yields required for the mine. (*see Front and Inside Cover*)

2002

Indiana Excellence in Mining and Reclamation Award Winner (EMRA) Squaw Creek Coal Company, Squaw Creek Mine

The reclamation of 410 acres with native warm-season grasses was a cooperative effort of the coal company, Division of Reclamation, Division of Fish and Wildlife, Natural Resource Conservation Service and Quail Unlimited. Warm-season grasses are accruing increasing interest as a viable alternative for revegetation. As a native Indiana plant, the grasses are deep rooting, drought resistant, require minimal maintenance and are excellent habitat. All of these benefits are evident at the Squaw Creek Mine. (*see page 15*)

2000 EMRA Award Winner

2001 OSM Award Winner

2001 IMCC National Honorable Mention

Kindill Mining, Inc., Kindill #2 Mine

The "Lake Woods Wildlife Management Area" exceeded the regulatory requirements for reclamation success and the majority of the area has been released from performance bond liability. The site is a large block area planned, reclaimed and managed for fish and wildlife habitat while maintaining the capability for other adjacent land uses. The site was originally reclaimed in the early 1990s and has continued to mature under the watchful management of the coal company.



Shallow water wetland at Kindill #2 Mine



1999 EMRA Award Winner

2000 OSM Award Winner

for

Exemplary Mining and Reclamation

(Best of the Best)

2000 IMCC National Award Winner

Black Beauty Coal Company / Vigo Coal Company, Columbia Mine

The Columbia Mine is an award-winning example of how reclamation, reforestation and wildlife habitat restoration can be successful at mid-western surface coal mines. The excellent tree survival and growth rates are a prime example of the proper handling and redistribution of the soil resource. The success of native warm season grass plots is attributed to having a deep productive soil in which they can thrive. The diverse wildlife habitat developed at this site is currently being utilized by a wide variety of wildlife. (*see Page 15*)

Recognizing Excellence in Mining Reclamation

- ☆ **2001 OSM Award Winner**
Triad Mining Inc., Switz City Mine
- ☆ **2001 OSM Director's Award (Agricultural Post Mining Land Use)**
Black Beauty Coal Company, Mines in Indiana and Illinois
- ☆ **2001 EMRA Award Winner**
Solar Sources, Inc., Cannelburg Mine
- ☆ **1998 EMRA Award Winner;**
1999 OSM National Award Winner;
1999 IMCC National Award Winner
Cypus-Amax Coal Company, Ayrshire Mine: Bluegrass Creek Area
- ☆ **1997 OSM Hall of Fame Award 20th Anniversary Awards**
Solar Sources, Inc.- Pit #12 Mine
- ☆ **1995 EMRA Award Winner;**
1996 IMCC National Award Winner
United Minerals/Black Beauty Coal Company, Deer Ridge Mine
- ☆ **1992 EMRA Award Winner;**
1992 OSM National Award Winner;
1993 IMCC National Honorable Mention
Solar Sources, Inc., Pit #12, for exemplary soil replacement and farmland restoration

AWARD WINNING RECLAMATION RESTORATION PROGRAM

Restored Land In the last 20 years, roughly 6,500 acres of abandoned and derelict lands have been reclaimed. This includes more than 142,000 feet of highwalls, more than 800 dangerous mine openings and subsidences, 300 structures, and 2,200 acres of environmentally threatening coal slurry and gob and 130 acres of trash.

is Productive These figures currently represent 72% of the known problems that needed to be addressed in the Indiana coal region. It is estimated that another 8 years of full funding is needed to clean up this backlog and another \$1.5 to \$2 million annually in additional federal funds thereafter to take care of new problems that arise, such as subsidences and slope failures. Currently, the AML program and Federal fee collections are scheduled to cease in 2004. Efforts are underway to extend the program through Congressional legislation.

In cooperation with the Office of Surface Mining Reclamation and Enforcement, customer surveys were sent for the second time to landowners on whose property reclamation work has been completed. The findings of the survey revealed that customer satisfaction continues to be very high both in terms of reclamation success and in terms of our relationship with the landowners.

The AML Emergency Program saw increased action in Spring 2002. Wet weather conditions caused many investigations as rain-soaked ground collapsed into abandoned underground mines. Fourteen emergency sites were reclaimed with a total cost of \$231,018. The reclaimed sites included: underground mine collapses (subsidence); failed highwalls which affected adjacent county roads; extinguishing a coal refuse fire; and the backfill of a deep mine shaft discovered in a woods by a hunter. The sites were investigated within one day of the reported observance. Reclamation is generally completed within 3-5 days due to the hazardous condition of the site.

Partners in Reclamation was initiated in 1999 with both the Sycamore Trails and the Four Rivers Resource Conservation and Development Councils plus several southwest Indiana county Soil and Water Conservation District Boards. The program focuses on smaller reclamation projects through direct involvement of the landowners in the reclamation and maintenance of their properties. Thirty-three projects totaling \$762,508 have been completed. These projects reclaimed approximately 94 acres of mine spoil, pits, gob, and haul road as well as the filling of eight subsidences and one mine opening. 750,000 gallons of acidic water were treated and the danger associated with 620 feet of highwall was reduced or eliminated.

The DOR Restoration Program has been an innovator in the development of artificial soil and the use of recycled mulch and manure products to enhance productivity of poor soils. Unfortunately, unless the materials are near the site, hauling charges often prohibit the use of these materials unless they are either donated or purchased at a very low cost.

Tree planting restores forests to mined lands. In a cooperative effort with the Division of Forestry, over 750 acres have been replanted with 607,400 trees since the program began four years ago. 170,000 trees will be planted in 2003 with 90,000 trees dedicated to the ReLeaf Program and the remainder to abandoned mine sites that are under reclamation by the Division. Through the ReLeaf Program, landowners receive tree-planting assistance in exchange for their commitment to maintaining the young trees. Requests outnumber funds available. A demonstration planting is planned for 2003 for the Dugger Unit to compare survival rates of pioneer species and hardwoods.

The SMART Grant Program was initiated in 1999 to encourage research in reclamation methods. Nine grants have been awarded a total of \$165,000. Grant recipients have included Indiana Geological Survey, Purdue University, Indiana State University as well as several out-of-state universities with coal research programs. Research topics are focusing on wetlands and treatment of acid mine drainage, tree survival and growth on reclaimed soils, and analysis and usage of various forms of coal combustion waste products.



Keeping Your Money

**AML Construction Funds
Spent in each Indiana County
As of October 2002**

County	Number of Sites	Cost in \$
Clay	102	5,334,830
Daviess	22	3,601,869
Dubois	12	40,174
Fountain	3	8,484
Gibson	6	156,913
Greene	83	5,670,744
Knox	26	10,752,523
Martin	6	1,201,990
Owen	8	17,289
Parke	15	408,538
Perry	6	363,422
Pike	79	23,536,316
Spencer	26	2,314,262
Sullivan	58	6,925,193
Vermillion	20	1,027,614
Vigo	75	10,654,356
Warrick	97	15,222,558
TOTAL	644	\$87,237,075

in Indiana

Informing the Public

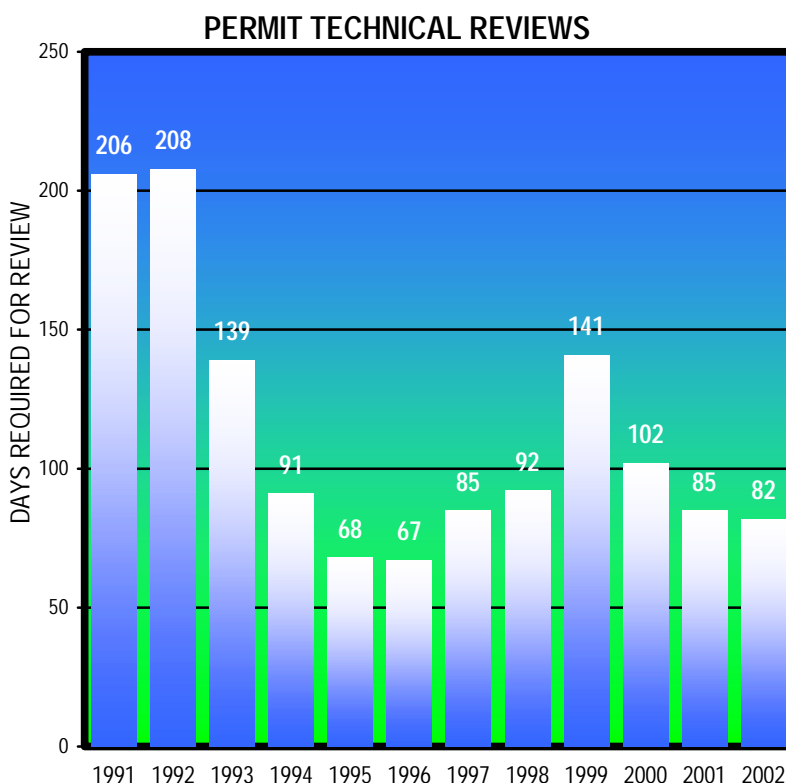
*In cooperation with the Indiana Geological Survey,
previously mined surface and underground mine maps are now available on the Internet.
(see Page 19)*

The Coal Mine Information System Map Server (CMIS) can be found at:

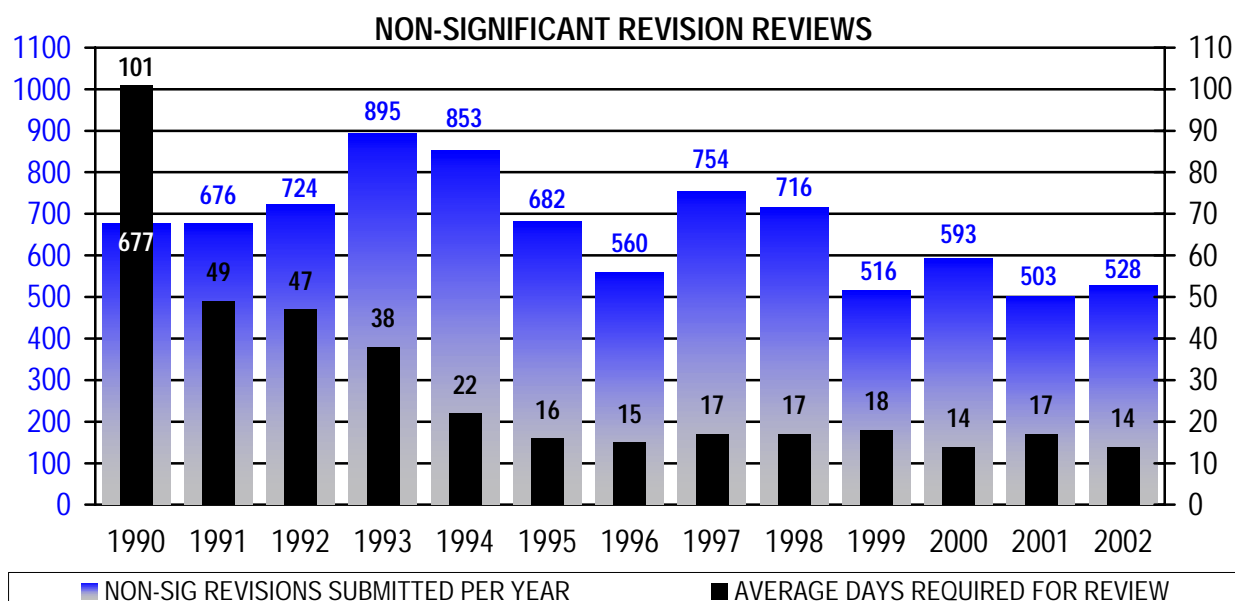
<http://igs.indiana.edu/geology/maps/coal/cmis>



REGULATORY PROGRAM



The time required to review a permit application and its related documents has been minimized. Through a series of process improvements, the number of actions has decreased in recent years. Meanwhile, the mine operations proposed in these applications have become significantly more complex and require increased technical evaluation.

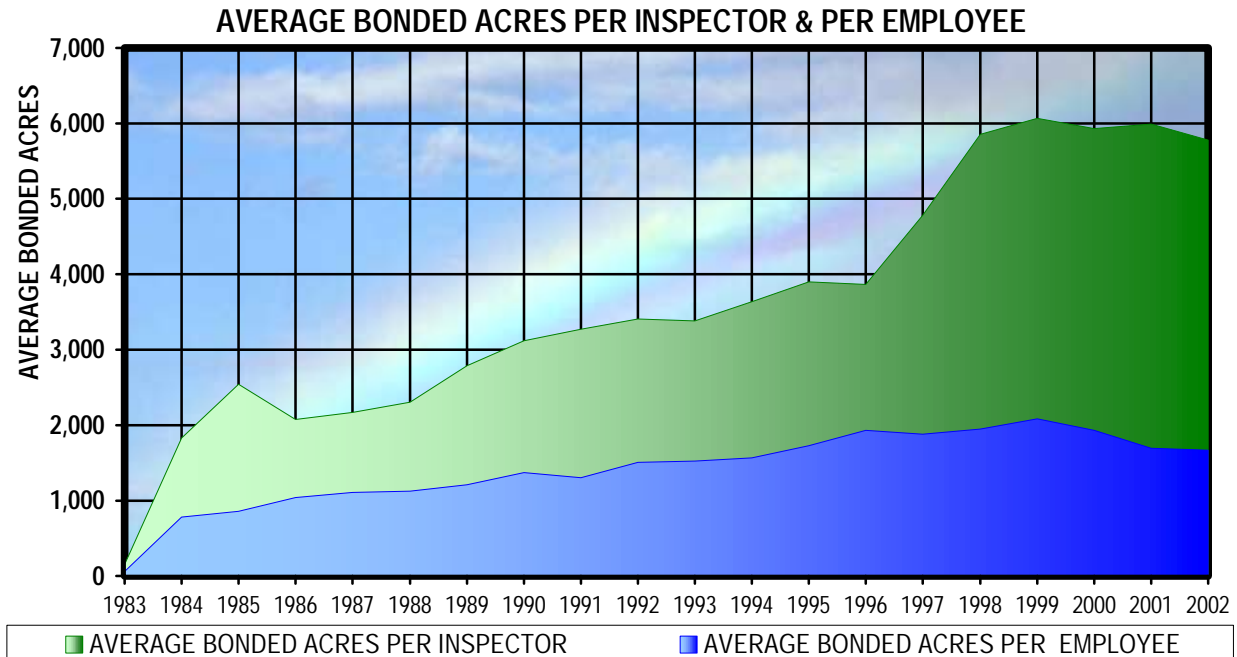


The number of new permits has decreased from a high of 28 in 1992 to 7 in 2002. The number of non-significant permit revisions received annually has remained constant at just over 500. The processing time for each request has been reduced to an average of 14 days.



Regulatory Facts:

In 2002, there were 8,797 acres added as new permitted areas. This brought the total acres that have been permitted since Indiana Regulatory Program started in 1982 to 308,252 acres.



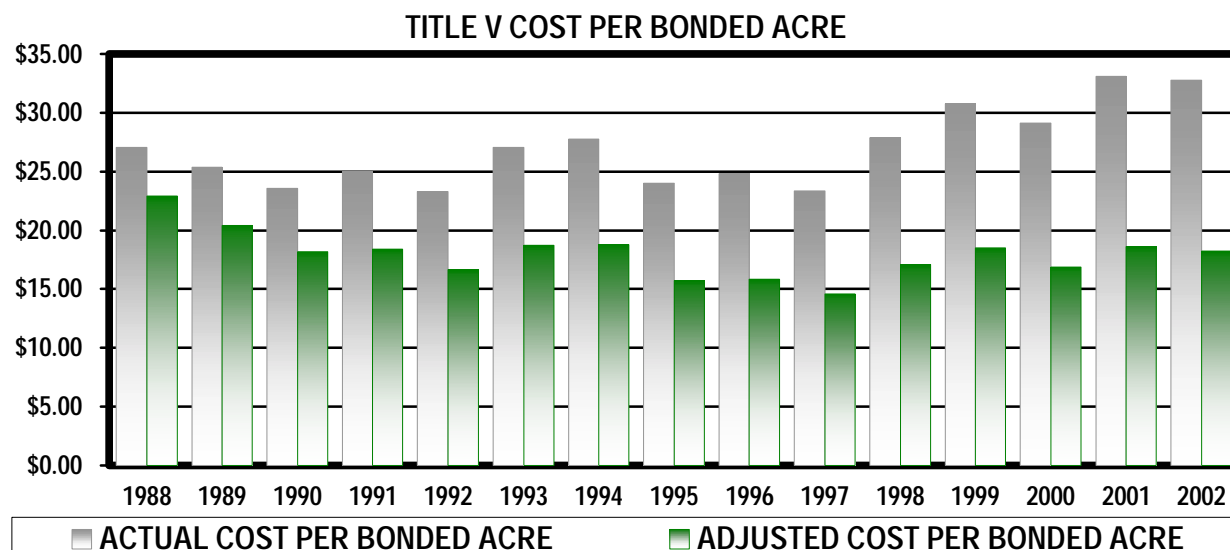
The Regulatory staff are responsible for inspecting approximately 98,000 acres that have a total bond of over \$328 million.

Approximately 600 inspections are conducted every quarter. All active sites must be inspected every month. All bonded sites must be given a complete inspection every quarter.

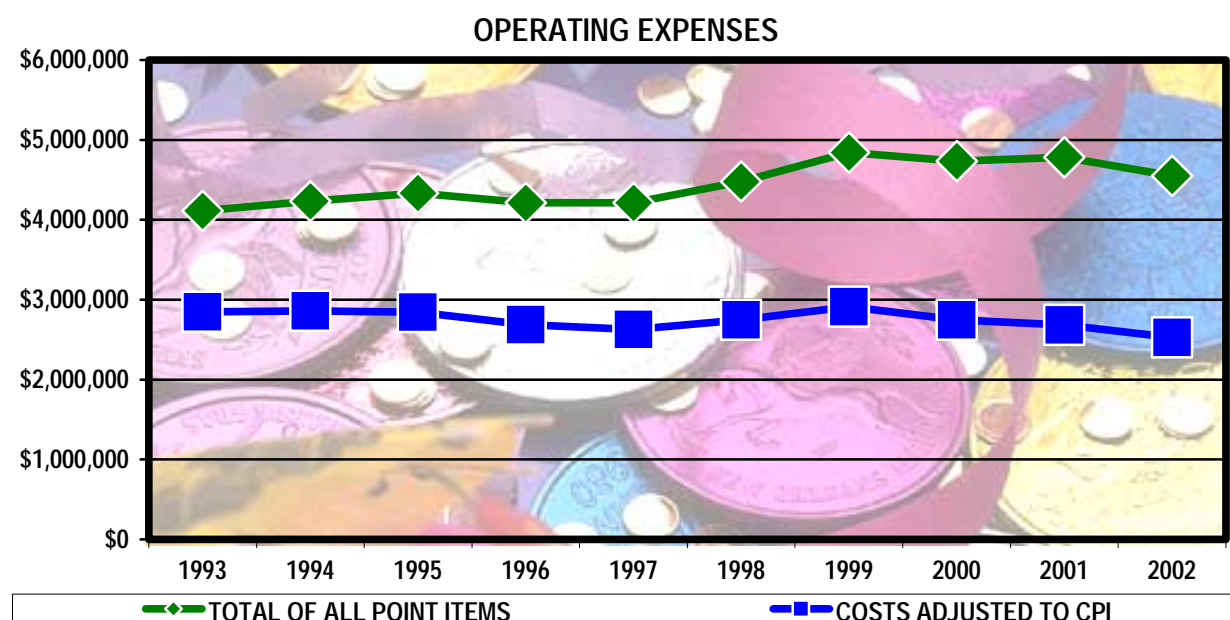
When considering only the number of acres under bond that are subject to mandated regular inspection and periodic permit modifications, the average number of acres assigned to an individual inspector has increased significantly over the life of the program. A similar pattern is evident when all Regulatory Program employees are considered. With the implementation of alterations in a number of staffing assignments, changing economic conditions, the increase in individual workload associated with this pattern has remained manageable. The recent increases in bond release activity have also provided relief to retain the quality of the permitting and inspection action consistent with the mission of the Division.

AWARD WINNING RECLAMATION

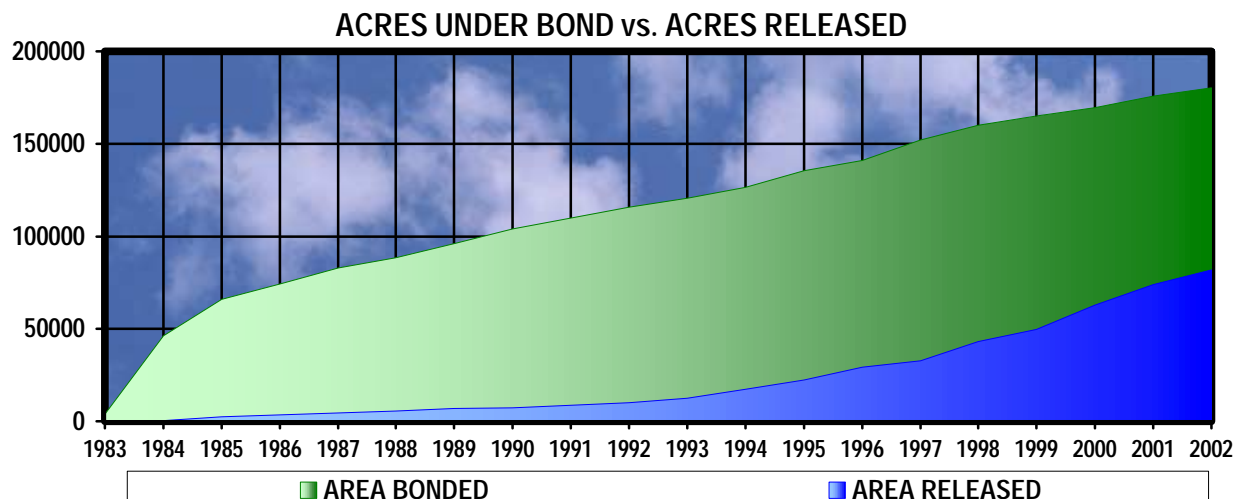
The efficiencies obtained are illustrated through an examination of the average cost to the program of an acre under permit. Through reorganization of some duties and rightsizing, this cost has remained remarkably stable over the life of the program. Despite relatively large increases in transportation costs, supplies, equipment maintenance, salary adjustments and other inflationary factors, the Division has been able to keep program costs well below the projected cost when indexed for inflation.



Adjusting costs to Consumer Price Index, Division spending has remained relatively flat for the last ten years, and has decreased each of the last three years.



AWARD WINNING RECLAMATION



Regular inspections are required on all permits until bond is fully released. Reclamation success is measured by how many acres are released and returned to the landowner. To qualify for release, the land must be reclaimed to a condition that will support the uses it was capable of prior to mining or "higher and better" uses.

An acre mined this year will not be eligible for final release until at least five (5) years after it is reclaimed. This "lag" can, and has, resulted in an increasing inventory of acres under the jurisdiction and inspection responsibilities of the Division. The result is a potential increasing cost to the State and a future concern for the ability of the State to adequately fund the Regulatory Program with the current reclamation fee/federal grant formula. Any decrease in coal production will place pressure on the State's General Fund to provide support to maintain the Regulatory Program at the federally approved level.



Hay harvest at Squaw Creek

(see Page 6)

2002 Indiana Excellence in Mining and Reclamation Award Winner

AWARD WINNING RECLAMATION

The Division has 25 seismographs available for placement near mines. Using seismograph data gathered by our blasting staff, we are able to help operators adjust blast design factors to reduce vibration and improve the efficiency of a blast.

Every quarter, the Division conducts a complete inspection of every coal mine that is actively blasting. Records and seismograph data for all blasts are reviewed for compliance with the ground motion, air blast and design standards set by the regulations. Included in the table below are the numbers relating to the blasting events reviewed by staff during the last several years. Any occurrence outside of the protective limits is a violation and is recorded.

PREVENTING BLAST DAMAGE PROTECTING OUR NEIGHBORS				
Year	# of Blasts	# of Violations	Average Homes in ½ mi.	Compliance rate
1996	14,956	7	2,580	99.9%
1997	15,893	75**	2,950	99.5%
1998	17,504	26	3,240	99.8%
1999	10,991	26	2,870	99.7%
2000	8,644	13	2,300	99.9%
2001	11,187	11	2,175	99.9%
2002*	8,233	7	2,030	99.9%

* data through the 3rd quarter 2002

** involved numerous violations at a single unmonitored structure

Squaw Creek wildflowers after 1 year (Quail Unlimited seeding)

(see Page 6)

2002 Indiana Excellence in Mining and Reclamation Award Winner





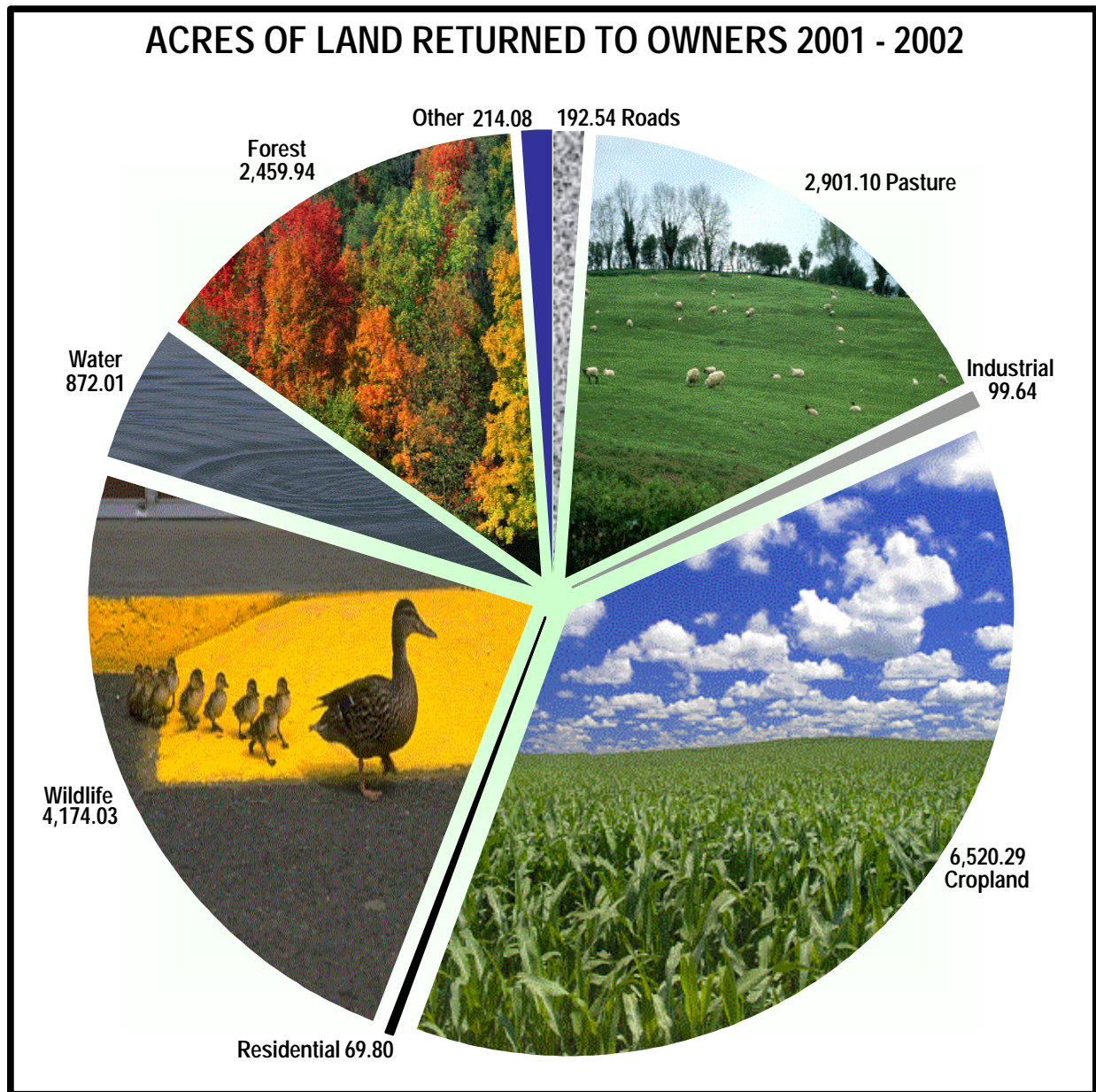
Protecting the environment, people and property is measured by the number of times incidents occur which extend beyond the boundaries of permitted areas being mined. These are referred to as *Off-Site Impacts*. Although coal operators take extensive protective measures, some impacts will occur outside of the permitted mining area. The nature of the impacts might include effluent discharge problems, flyrock, erosion and sedimentation, or drainage control failures. The nationwide target for prevention is 94% free of impacts. As shown in the next chart, the Indiana percentage of prevention is close to the national target.

PREVENTING OFF SITE IMPACTS MAXIMUM PROTECTION OF ADJACENT LANDS				
Calendar year	Number of inspections	Average Inspectable Units	Impacts observed	% free of impact
1996	4,488	281	25 impacts	91.1%
1997	4,048	247	23 impacts	90.6%
1998	3,682	232	21 impacts	90.9%
1999	3,448	222	14 sites / 26 impacts	93.6%
2000	3,089	198	18 sites / 24 impacts	90.9%
2001	2,775	176	13 sites / 15 impacts	92.6%
2002	2,394	142	10 sites / 18 impacts	92.9%



AWARD WINNING RECLAMATION

Land uses restored and returned to the landowners from 2001 to 2002 are shown in the following pie chart.



Cornfield photo – copyright Joel Seguin 2001



AML AWARD WINNING SITES



BEFORE RECLAMATION

AFTER RECLAMATION

Sunshine Mine

(see Page 4)

2002 OSM AML Mid-Continent Regional Award and National Award



BEFORE RECLAMATION

AFTER RECLAMATION

Midwestern Project

(see Page 5)

2000 OSM AML Reclamation Mid-Continent Regional Award

2000 OSM Peoples Choice Award

AWARD WINNING RECLAMATION OUTREACH AND EDUCATION

At the Division of Reclamation, trained facilitators lead informal discussions and public meetings on coal permit issues. We periodically solicit feedback from landowners and reclamation contractors regarding our performance. Our expertise in public participation is solicited both by other DNR divisions and other state agencies.

Coal mine operators are required to file and maintain a copy of their current mining permits at a library within the county where they are operating a mine. Often library personnel are uncertain how to handle this material and make it available to the public. Our regulatory inspectors assist libraries in organizing mine permit information so it is more accessible.



During 2001, Division staff participated in two field days that were attended by academia, local elected officials, soil and water conservation districts, landowners and others who were interested in modern reclamation methods. One field day focused on reclamation and soil practices at an active coal mine. The second field day featured reclaimed land at an abandoned mine site and the use of innovative restoration techniques. Additional field days are being planned for the future.



Mineral Education Workshop

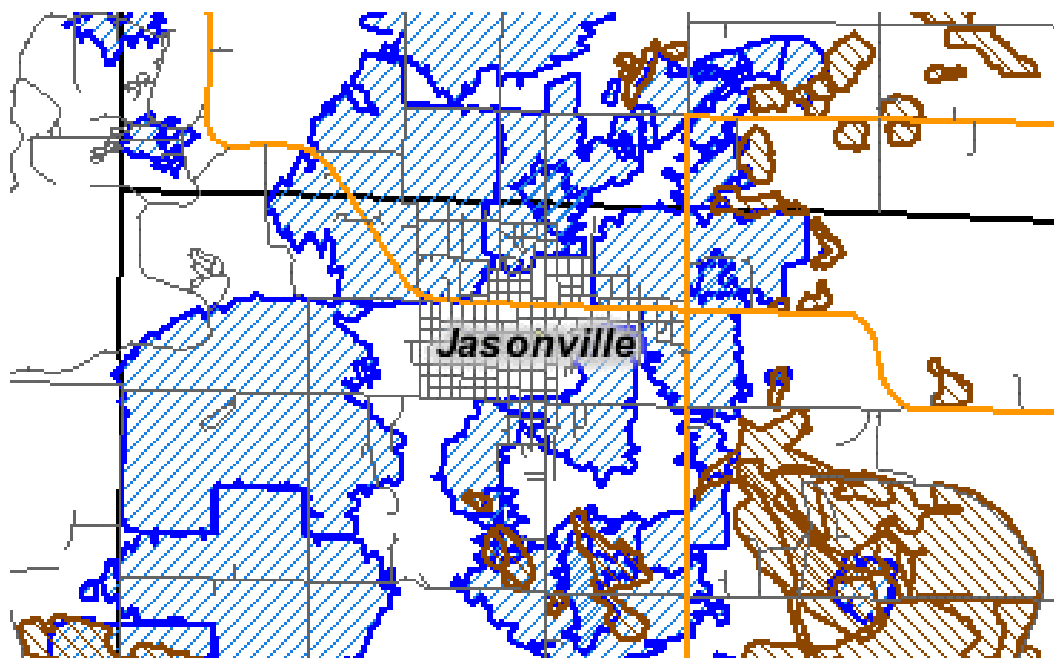
The Division has hosted three successful annual Mineral Education Workshops. Due to its interactive format, the November workshop has become popular with teachers from all over Indiana. The workshop is designed to support the elementary earth science curriculum with activities designed for immediate use in the classroom. Teachers return to their schools with lesson plans and a large tub of classroom materials.

AWARD WINNING RECLAMATION

Division staff provided technical support to Shakamak High School for two grants on mineral education. Staff arranged tours for students, assisted with a water data analysis project, GIS/GPS mapping of Shakamak State Park, judged the science fair, and helped with information on the coal mining history of the region. Through a business work project, high school students gained work experience working in Division field office and a math teacher spent part of summer vacation in a job-shadowing program. Every spring, the Division organizes an Earth Day program for fifth graders from a southwest Indiana school.

2002 marked the 16th annual technical conference on mining and reclamation sponsored by the Indiana Society of Mining and Reclamation (ISMR). The Division provides administrative support, speakers and participants. This event is attended by representatives from the mining industry, government agencies, utilities and academia from a three-state area. The conference has developed an excellent reputation for the latest research and innovative mining and reclamation techniques.

The Division continues to make progress in its use of computer technology internally and for the benefit of our external customers. We are upgrading our website in cooperation with DNR efforts to increase public access to information and programs. A new file server is enhancing internal capabilities to develop additional databases and make our series of GIS maps and information available at the desktop of each employee. Information on previously mined sites is available over the Internet through a project with the Indiana Geological Survey (*see page 9*). The Division is undertaking an extensive project to catalog and file its graphical images.



from the website of
Indiana Geological Survey
Coal Mine map of Jasonville, IN

Brown indicates location of previous surface coal mine activity
Blue indicates location of previous underground coal mine activity



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